

Central venous access is frequently provided by way of umbilical venous catheter placement in critically ill newborns. This study compared the methods of Dunn, Shukla-Ferrara, and Revised Shukla-Ferrara in determining the appropriate insertion length of umbilical vein catheters” Mutlu et al (2017).

Abstract:

AIM: Central venous access is frequently provided by way of umbilical venous catheter placement in critically ill newborns. This study compared the methods of Dunn, Shukla-Ferrara, and Revised Shukla-Ferrara in determining the appropriate insertion length of umbilical vein catheters.

MATERIAL AND METHODS: This prospective observational study was carried out in 121 newborns with umbilical venous catheter, group 1 (n=41) used Dunn method, group 2 (n=40) used the Shukla-Ferrara formula, and group 3 used revised Shukla-Ferrara formula (n=40). Catheter tip position was evaluated with an anterior-posterior chest radiograph after insertion of the umbilical venous catheter. The ideal position for the umbilical venous catheter was defined as the catheter tip being visible between the 9th and 10th thoracic vertebrae on an anterior-posterior chest radiograph. The position of the umbilical venous catheter was considered too high if the tip of the catheter was higher than the 9th thoracic vertebra and too low if the tip was below the 10th thoracic vertebra. The following data were collected: appropriate, inappropriate (low, high) placement, and complications of umbilical venous catheterization.

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RESULTS: In the Shukla-Ferrara group, 53% (17/32) of umbilical venous catheters were placed directly in the appropriate position, compared with 40% (12/30) in the revised Shukla-Ferrara group and 38% (11/29) in the Dunn method group. Umbilical venous catheter-related complications developed in two patients, thrombus in one, and catheter-related blood stream infection in the other.

CONCLUSIONS: This study showed that the Shukla-Ferrara formula is more accurate in predicting the insertion length for umbilical venous catheters, though statistical significance was not found. Further studies with larger samples are needed on this topic.

Reference:

Mutlu, M., Pariltan, B.K., Aslan, Y., Eyüpoğlu, İ., Kader, Ş. and Aktürk, F.A. (2017) Comparison of methods and formulas used in umbilical venous catheter placement. *Türk Pediatri Arşivi*. 52(1), p.35-42.

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